ORIGINAL

Antonio Gill

From: gary oliphant [g.oliphant@yahoo.com]
Sent: Monday, August 29, 2011 6:53 PM
To: Pierce-Web
Cc: Burns-Web; Newman-Web; Stump-Web;
Subject: Smart Meters- "secret" technology confirr
Attachments: smart meters ACC Pierce.pdf

Smart Meter Generic Investigation E-00000C-11-0328

Dear Chairman Pierce,

In my letter dated 8/23/2011, I made an assertion about "secret technology" in Smart Meters that might be contributing to higher energy bills among some ratepayers, a capability that the industry adamantly denies to the consumer. At the time, I was providing information that I had only heard briefly about in a presentation titled "Expert Debunks Corporate Smart Meter Craze" by Rob States, M.S. at

http://www.youtube.com/watch?v=xAZ_KGN2vAc

The point where subject surfaces in the video is at ~6:06.

When customers complain, they are told Smart Meters don't measure anything differently than the analog meters. Instead, they are told hotter weather conditions or below the radar changes in their habits might be the more likely contributors to higher bills, which in all honesty, might be true.

The information below shows that these meters DO measure instantaneous power and include it into kWh consumed within any given billing period. The type of circuity that performs the job is also briefly described. For your convenience, along with the text, I have provided the source link. This is a capability over and above that of analog meters and changes the way residential power consumption has been measured for more than a century.

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""The first step in meter evolution was the replacement of electromechanical meters with *solid-state electronic meters*. Electronic meters measure energy using highly integrated components, such as the ADE516x,[1] ADE556x,[2] ADE716x,[3] ADE756x,[4] and ADE77xx[5] families of energy-measurement ICs.[6] These devices digitize the instantaneous voltage and current via a high-resolution sigma-delta ADC*. Computing the product of the voltage and current gives the *instantaneous power* in watts. **Integration over time gives energy used, which is usually measured in kilowatt hours (kWh)."**

*ADC= Analog to Digital Converter
Source: http://www.analog.com/library/analogdialogue/archives/43-01/smart_metering.html

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In addition to the health, privacy and data security issues that the industry also denies, I believe this adds just one more dimension to the saga surrounding the public's concerns about Smart Meters and the utility industry "spin".

In my haste to get the original letter to Chairman Pierce, it contained some minor errors. A corrected copy is included (attached PDF) for your records and I have taken the liberty to copy all of the Commissioners.

As the details for the upcoming Sept 8 special hearing become known, I would like to ask to be included on the list of those to be notified.

Thank you again for listening...

corrected copy of original dated August 23, 2011

Subject: Smart Meters- My Concerns and what I believe should happen for the near term

Dear Mr. Pierce,

Please accept my apology for this unusually long letter. But it seems prudent to voice my concern while providing at least some basis for it.

I have spent nearly every day since I was first notified by APS with a "stealth" door hanger on July 20, 2011 researching and contemplating many aspects of Smart Meters. I believe I have kept an open mind, looking at both sides of this issue while trying to filter out the extreme positions and rumor.

The only conclusion I can come to as a person caught in the middle, is that there continues to be a growing concern all over the country over these devices...especially among those more qualified to assess the risks than I am. Therefore, I am appealing to you for help.

Dueling reports on health effects are no help. Claims by the utilities on the security of data also hold no water as it has been determined the data being sent from these meters is not encrypted (at least those used by PG&E in CA are not) until sometime downstream, making the signals they transmit vulnerable to being intercepted within the neighborhoods that they operate with as little as $1500 worth of equipment.

There is no assurance that personal data will not be sold or shared by the utility. In fact, it seems that the utilities believe they have permission to do just that under "implied consent" in spite of what the utilities are telling the public now. Unless prohibited by law, they will just change their minds.

I personally know of at least one resident in Prescott Valley who was doing just fine until his analog meter was replaced with a Smart Meter. He immediately started experiencing problems with circuits in part of the house. My guess is a nasty effect "dirty power" caused by the switching power supply in the Smart Meter. For days he was told to hire an electrician at his own expense. To this day, I don't believe the problem has been completely resolved.

Even though APS sought and continues to seek rate increases to fund this "improvement", the implementation process has curiously been more of a steamroller operation. APS wasn't even giving their customers any kind of meaningful information over the last few years of what was going on until 1-3 days before installation was to take place when, if you were lucky, you might have found a door hanger somewhere on your property. Installation usually occurred the next day, the homeowner aware or not, with many feeling like they had been "bushwhacked". Those who protested were told by APS they had no choice. Unconscionable.

Initially, neither SRP or APS were considering any kind of opt-out program like the one being offered by PG&E in California. With the prospect of consumers winning more cases like the one in Maine, now opt outs are being considered by both APS and SRP and both intend to CHARGE THE CONSUMER for making a rightful decision to protect their families and personal interests. That is simply not fair.

We are told the new meters don't do anything differently than the old meters except allow certain resource intensive operations to be performed remotely. Yet for some opt-opt programs, customers are required to accept a digital meter with no or disabled wireless capability. If the new meters are not different, why incur the expense to replace a perfectly good and perfectly reliable analog meter? That's because I have learned they CAN do something differently that APS doesn't want its customers to know about, not yet, anyway and it probably explains why some bills inexplicably go up a minimum 10-30%.

I believe it is long overdue for the Arizona Corporation Commission to act in the greater interest of the Consumer on this issue

From studies I've read, the RF energy Smart Meters emit is very likely dangerous over the longer term. Smart Meters pose an intrusion on privacy and will raise (and have already raised) the cost of energy without the prospect of saving a single kilowatt hour for the the long term despite industry claims.

Admittedly, there is likely to be some energy savings for the *short* term as consumers are able to look at their consumption online within 24 hours of usage and make adjustments in their habits. This will work only if everybody in Arizona has the capability of going online to view their usage or is even inclined to do so. Making the feature available doesn't guarantee savings. I have done the same thing by borrowing a Kill-A-Watt meter from a family member. Once the "awareness factor" was over, I returned the Kill-A-Watt meter and my savings plateaued. With the Smart Meter however, the increased costs of of this albatross will be the lingering long after and there will be no additional future savings.

There is an obvious advantage to moving some household electric consumption to off peak hours, but again, this is also an awareness issue and one that would be voluntarily chosen to be implemented by the consumer with or without a Smart Meter, that is of course, unless we do something like put a chip in the appliance so the Smart Meter will allow it to function only during off peak hours.

From the industry side, I see basically 2 reports that surmise that there is no conclusive evidence to support an inherent danger in the implementation of wireless Smart Meters.

The first and probably the most frequently referenced by the utilities is a report by the California Council on Science and Technology (CCST) which did no independent study of its own, although that is exactly what it was asked to do. Instead, it simply regurgitated results of other reports in favor of Smart Meter technology, most notably the second, a report by EPRI (Electric Power Research Institute), which represents the interests of 90% of the electric energy produced and sold in the United States. EPRI assumed a less restrictive interpretation of FCC regulations in determining its results.

Another report by Sage Associates of Santa Barbara, CA, assumed a stricter (and most likely correct) interpretation of FCC requirements for the type of transmitter in Smart Meters. Sage concluded that violations of FCC requirements were highly likely in the situations Smart Meters were intended to be installed and operated, especially in higher density areas.

The bottom line I see between CCST/EPRI and Sage in the flurry of rebuttals to each others' reports, is that the experts can't even agree on how to interpret the FCC regulation for measuring RF radiation emitted by Smart Meters! Very little of the conclusions in these reports are based on real world measurement. Instead, they rely on virtually eternally arguable interpretations of FCC regulations and

on token measurement with an emphasis on computer modeling and calculations to try to predict what the harm might or might not be.

Measurements performed in situ of Smart Meters in action have shown that the actual exposure in some installations is in excess of what the FCC allows and what the utilities have claimed, increasing the public to the risks of non-ionizing RF radiation.

A study done on the impact of the Sutro Tower in San Francisco however, is a study that discovered a direct correlation between exposure over a 15 year period to non-ionizing RF energy that includes the frequency range emitted by Smart Meters. ALL of the harm reported in 120 of 123 children in the Sutro Tower study occurred at RF levels BELOW the current maximum allowed by the FCC (ref: Rob States, M.S., "The Dark Side of Smart Meters"). Show me a report that says non-ionizing radiation is safe or the risks are inconclusive and there is likely a link to an industry that has an interest in that claim.

In all of my research, I have not run across a single report that has been able to discredit the Sutro Tower study as it relates to predicting the potential harm that can be caused by Smart Meters. So, while there is little to support the hazards of Smart Meters *per se*, there *are* studies that ring the alarm bells loudly on the impact of non-ionizing radiation produced in the Smart Meter operational frequency range and power levels with higher "real world" duty cycles.

I believe there is sufficient urgency to consider a moratorium on the installation of Smart Meters in Arizona. Any effort the ACC can pursue on its own would appear to be better than pursuing something through the Legislature, as it seems most prudent for the ACC to regulate APS without the intervention of a legislative body.

It is frustrating to have to try to earn a living in this poor economy and deal with the every day problems we all have and at the same time to keep track of what would seem to be all the schemes and plans going on behind closed doors to take more of our dollars and our freedoms. The presumptuousness and arrogance of the utility companies' steamroller tactics doesn't help, either.

It is hard to believe that the current frenzy is not probably fueled by the grab for stimulus dollars by the utility companies, along with an excuse to seek rate increases for energy or maybe even the prospect of being able to sell customer data and usage patterns or otherwise exploit the increased capabilities of the Smart Meter at the consumer's expense. Our cynicism has become a conditioned response, borne out over many years by the end result we see in *higher*, not lower costs.

Educating consumers is less invasive and less dangerous than suspect technology. The utilities can save fossil fuel energy and labor costs by offering customers an incentive to go to level or averaged billing on a 6-12 month schedule. That makes more sense to me than to force captive customers to accept a potentially hazardous, invasive and secret technology while passing the costs on to that very customer without the prospect of any tangible benefit.

I implore the ACC to take a serious look at this issue...and ask that you do what you can to put a halt to the proliferation of wireless Smart Meters in Arizona by the utility companies the ACC regulates, at least until the unresolved issues can be investigated further and the results systematically cultivated with the public.

A satisfactory approach would contain the following elements:

1) I would like to see a moratorium on installation until the health, privacy and security questions are fully resolved.

2) In the absence of a blanket moratorium, customers must be able to refuse installation or have their wireless disabled, essentially opting out at *no charge*. They should get the old meter back if that is what they want.

3) If customers have an analog meter, they get to keep it. No "alternative" digital replacement.

4) I believe the ACC needs to look at ALL the reports with a critical eye and seek to obtain real answers to the questions of demonstrated health impacts in the frequency range, unencrypted meters, protection and security of personal data. It also needs to investigate the "dirty power" aspect of Smart Meters.

5) I want specific answers to the health, privacy and security issues...not canned answers from a rep who doesn't know what they are talking about. For example, if Smart Meters are safe, prove it with actual measurements and data as many times as it takes, not theory. Have the utility certify the results under penalty of perjury. If privacy and network security concerns are unfounded, prove it. Demonstrate the specific provisions in place to protect it. Claiming the system is audited doesn't go far enough.

6) If a homeowner experiences problems after a Smart Meter Installation, APS should be required to help with the resolution or reinstall the old meter. It that fixes the problem, the Smart Meter *was* the problem. The utility should act as a partner instead of a tyrant.

Lastly, I alluded to other capabilities of Smart Meters, "secret technology", unexplained 10-30% increases in utility bills and you might have been wondering what that could be about.

I used to own a food business and had a lot of refrigeration equipment. The power panel supplying these circuits was monitored by a *digital* meter instead of the conventional analog meter. I learned this type of "smart meter" was capable of taking into account a principle in electricity called *power factor* when starting inductive appliances like refrigerators, freezers, etc. Any competent electrician should be able to explain this concept in greater technical detail.

In short, a purely resistive load like a hot plate, soldering iron, clothes iron, electric stove, baseboard heater, etc., generally starts and continues to run on it operating current. If the resistive load requires 10 amps to run, it will generally draw those same 10 amps to start it.

Any *reactive* load, however such as: fans, air conditioner compressors, shop compressors, swamp coolers, dehumidifiers, table saw motors, desktop computer power supplies, hairdryers, electric mixers, blenders, electric drills, switching power supplies found in AC adapters, generally needs ~2-3 or *more* times its operating current to start. The *digital* meter and its digital signal processing capability can understand the amplitude and frequency of these spikes in terms of equivalent kilowatt hours. The utility can apply your normal or maybe even a special rate to this type of usage. A normal air

conditioner with a 1 degree temperature differential might cycle on and off every 6-10 minutes or six to ten times per hour.

The prospect and potential benefit of being able to bill every single electric customer on earth in this manner is absolutely mind boggling.

That, I believe, is the closely held secret and perhaps the primary driver behind wanting to get rid of the analog meter completely. Perhaps the utilities are justified in acquiring this new capability, but because this changes the entire paradigm in the way residential electricity usage has been measured over perhaps a century, we have a right to know that this is what is going to happen *before the fact.*

So, I wish to add #7; and that is for the utility company to tell the *whole truth* about Smart Meters. When a utility rep tells you the new meters don't do anything more than the analog meters, they are either misinformed or they are lying.

In the context of what I just described and regardless of whether or not Smart Meters are completely safe and secure, the consumer shouldn't be paying for *any* of these "improvements" through rate increases or added fees. The costs should be recouped in the future savings and increased efficiencies the utility companies are so swift to claim...and last but not least, the new measurement and billing paradigm. It's what we call *investment.* ***(Accordingly, APS's request for a rate increase, now before the Commission, should be denied.)***

The effort invested NOW to ferret out the truth on the entire scope of Smart Meter risks serves the public interests better than having to deal with the fallout and costs of perhaps trying to reverse a very bad situation later...again at the expense to the consumer in increased energy costs and wasted tax dollars. The ACC will be better off for having done it.

Until there is irrefutable evidence to show that the implementation of Smart Meters likely represents no threat to health, privacy or security of personal data, functionality of power delivery or stealth billing increases, my position must remain to be non-accepting of the Smart Meter and not permit one to be installed on my home...and I don't expect to have to pay for the right to do it. I am also compelled to encourage others to do the same.

I heard it recently stated that 1% of the people get things done; 9% watch things get done; and 90% wonder what the hell happened. I believe that is exactly what the industry is counting on. I respectfully submit that just because a super-minority is raising the flag on Smart Meters, it is no reason for the industry or the regulators to be dismissive of our concerns.

Thank you for listening.

Sincerely,

Gary Oliphant
Paulden, AZ